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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
HAILEY, PATRICIA L	

ART UNIT	PAPER NUMBER
1755	

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/830,182	GULLA ET AL.	
	Examiner	Art Unit	
	Patricia L. Hailey	1755	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *08 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19,23-35 and 45* is/are rejected.

7)☒ Claim(s) *20-22 and 36-44* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 4, 7, 9, 10, 12, and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

3. The formulae "Ru_xS_y" and "Ru_xM_yS" as recited in claims 4, 7, and 9, and inthe Specification lack specific definition for the subscripts "x" and "y", in terms of a numerically defining atomic range.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 3-22 and are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites the trademark "Vulcan XC-72", which renders the claim indefinite since the relationship between a trademark and the product it identifies

is sometimes indefinite, uncertain or arbitrary. The formula or characteristics of the product may change from time to time and yet it may be sold under the same trademark. In the claims, every element or ingredient of the product (in this case, "carbon") should be set forth in positive, exact, intelligible language, so that there will be no uncertainty as to what is meant. Arbitrary trademarks which are liable to mean different things at the pleasure of manufactures do not constitute such language. See Ex parte Kattwinkel, 12 U.S.P.Q. 11 and MPEP 608.01(v).

Claims 4, 7, and 9 are indefinite because there are no numerically defined values for the subscripts "x" and "y" recited therein.

Claims 5 and 11 lack antecedent basis for the claim limitation "evaporating the solvent", and claim 11 lacks antecedent basis for the claim limitation "impregnation of said carbon".

Claim Objections

6. Claim 45 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 45 recites the limitation "using an oxygenated gas diffusion cathode of claim 20"; claim 20 is not directed to an oxygenated gas diffusion cathode. Claim 20 is directed to a "gas diffusion electrode".

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claim 45 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 45 recites the limitation "using an oxygenated gas diffusion cathode". Claim recitations of "use" and its derivatives are non-statutory subject matter.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

10. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 1, 7, 8, 11, 14-19, 23-27, 29, and 31-34 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Breysse et al. (U. S. Patent No. 5,248,648).

Breysse et al. teach a hydrorefining catalyst comprising ruthenium sulfide and cobalt and/or nickel sulfide on a refractory oxide support. See the Abstract of Breysse et al., as well as col. 2, lines 16-28,

The catalysts are prepared by successive impregnations of the refractory oxide with solutions of metal salts. The impregnations may be performed in any order, although the ruthenium salt (e.g., ruthenium trichloride or hexaaminoruthenium) is preferably impregnated first. Once the impregnations are completed, the catalyst is sulfided with a gas mixture containing hydrogen sulfide, i.e., generally a mixture of hydrogen sulfide with either hydrogen or nitrogen. See col. 2, lines 39-58 of Breysse et al, as well as Example 1, which depicts an embodiment of preparing Patentees' catalyst, which includes drying the catalyst at 110°C, as well as treatment with a mixture of hydrogen sulfide and nitrogen (containing 15% hydrogen sulfide) at a temperature of 600°C for 4 hours.

It is noted that claims 11 and 14-19 are product-by-process claims (i.e., "obtained by incipient wetness impregnation..."). Although Breysse et al. disclose a preparation process similar to that respectively claimed, it has been held that: "[A]ny difference imparted by the product by process limitations would have been obvious to one having ordinary skill in the art at the time the invention was made because where the examiner has found a substantially similar product as in the applied prior art the burden of proof is shifted to the applicant to establish that their product is patentably distinct, not the examiner to show that the same is a

process of making." In re Brown, 173 U.S.P.Q. 685 and In re Fessmann, 180 U.S.P.Q. 324.

The claim limitation "chemically stable in a hydrochloric environment in the presence of dissolved chlorine and optionally of dissolved oxygen" is considered a property inherently exhibited by Breysse et al.

In view of these teachings, Breysse et al. anticipate claims 1, 7, 8, 11, 14-19, 23-27, 29, and 31-34.

In the alternative:

Breysse et al. disclose that Patentees' catalyst is for hydrofining petroleum and petroleum fractions (col. 1, lines 9-22), as opposed to 'for oxygen reduction", as instantly claimed (e.g., claims 1 and 23). However, Applicants' claim limitation "for oxygen reduction" is considered a statement of intended use. Since the claimed invention is directed to a composition and a method for its preparation, a statement of intended use of said composition does not affect the patentability of the claimed composition. In re Thuau, 57 U.S.P.Q. 324 (CCPA 1943); In re Schoenwald, 22 U.S.P.Q. 2d 1671 (FC 1992).

Moreover, a new use for an old composition does not render it patentable. It is contrary to spirit and letter of patent laws that patents be granted for old composition of matter based on new uses of composition where uses consist merely in employment of compositions; Patentee is entitled to every use of which invention

is susceptible, whether such use be known or unknown. In re Thuau, 57 U.S.P.Q. 324 (CCPA 1943).

Claim Rejections - 35 USC § 103

13. Claims 1, 7, 8, 11, 16-18, 23-27, and 29-33, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raybaud et al. (U. S. Patent No. 6,149,799).

Raybaud et al. teach a catalyst for hydrofining and hydroconverting hydrocarbon feeds, said catalyst comprising a mixed sulphide comprising at least two elements selected from those having the following atomic numbers: 3, 11, 12, 19-33, 37-51, 55-83, and 87-103. See the Abstract of Raybaud et al., as well as col. 1, line 63 to col. 2, line 7, and col. 9, lines 14-35.

The reference also discloses exemplary mixed sulphides reading upon Applicants' claims 1, 6, and 7. see col. 6, line 64 to col. 8, line 27 of Raybaud et al.

Patentees' catalyst can be prepared by "any method which is known to the skilled person" (col. 10, line 1-67). Such methods include impregnating a matrix with a solution of the constituent elements of the active phase, followed by drying at temperatures ranging from about 60°C to 250°C. Constituents include oxysulfides (considered to read upon the limitation "sulfite acid"), halides, nitrates, etc. (col. 10, lines 47-67).

Additionally, Raybaud et al. disclose the feasibility in impregnating elements in the matrix by adding hydrogen peroxide. See col. 12, lines 57-59 of Raybaud et al. This disclosure, along with the aforementioned constituents, is considered to read upon claim 35.

The catalyst of Raybaud et al. is not disclosed as suitable for use in oxygen reduction, as recited in Applicants' claims. However, Applicants' claim limitation "for oxygen reduction" is considered a statement of intended use. Since the claimed invention is directed to a composition and a method for its preparation, a statement of intended use of said composition does not affect the patentability of the claimed composition. In re Thuau, 57 U.S.P.Q. 324 (CCPA 1943); In re Schoenwald, 22 U.S.P.Q. 2d 1671 (FC 1992).

Moreover, a new use for an old composition does not render it patentable. It is contrary to spirit and letter of patent laws that patents be granted for old composition of matter based on new uses of composition where uses consist merely in employment of compositions; Patentee is entitled to every use of which invention is susceptible, whether such use be known or unknown. In re Thuau, 57 U.S.P.Q. 324 (CCPA 1943).

Given the strong similarities between the teachings of Raybaud et al. and Applicants' claims in their present form, it would have been obvious to one skilled in the art to reasonably expect that the catalyst of Raybaud et al. would function in oxygen reduction, absent the showing of convincing evidence to the contrary.

Additionally, because Raybaud et al. teach a catalyst comparable to that respectively claimed, one of ordinary skill in the art would reasonably expect the catalyst of Raybaud et al. to exhibit Applicants' claim limitation "chemically stable in a hydrochloric environment in the presence of dissolved chlorine and optionally of dissolved oxygen."

Claim Rejections - 35 USC § 103

14. Claims 1-6, 23, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dubeck et al. (U. S. Patent No. 4,430,253).

Dubeck et al. teach a sulfide-modified ruthenium catalyst deposited on, for example, carbon. See col. 5, lines 26-32 of Dubeck et al.

The catalyst may be prepared by dissolving a soluble ruthenium compound in a suitable solvent and impregnating the support therewith. The impregnated support is then dried and reduced with hydrogen at elevated temperatures. Preferably, the ruthenium is in the form of ruthenium chloride, and exemplary solvents include alcohols having 1-4 carbon atoms (considered to read upon "2-propanol"). See col. 6, lines 54 to col. 7, line 2 of Dubeck et al.

Additionally, the catalyst may be prepared by dissolving a soluble ruthenium compound in a solvent, adding it to a catalyst support, and adding thereto a sulfide-containing solution. The solvent is vaporized from the catalyst mixture, and the

final product is contacted with hydrogen. Sulfide may be introduced by materials such as hydrogen sulfide. See col. 7, line 53 to col. 8, line 20 of Dubeck et al.

Although the catalyst of Dubeck et al. is not disclosed as being "for oxygen reduction" or "chemically stable in a hydrochloric environment in the presence of dissolved chlorine and optionally of dissolved oxygen", one of ordinary skill in the art would reasonably expect that, because Dubeck et al. teach a catalyst comparable to that respectively claimed, as well as a comparable method for preparing said catalyst, these limitations would be embraced by Patentees' catalyst, absent the showing of convincing evidence to the contrary.

Allowable Subject Matter

15. Claims 9, 10, 12, and 13 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

16. Claims 20-22 and 36-44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

17. The following is a statement of reasons for the indication of allowable subject matter:

The prior art does not teach or suggest the limitations of these claims. For example, while gas diffusion electrodes are known in the art, any electrodes containing ruthenium sulfide as their catalyst is not.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia L. Hailey whose telephone number is (571) 272-1369. The examiner can normally be reached on Mondays-Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 1700 Receptionist, whose telephone number is (571) 272-1700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patricia L. Hailey/plh
Examiner, Art Unit 1755
March 21, 2005

J.A. LORENGO
PRIMARY EXAMINER